

CHEM 636/436: Advanced Physical Chemistry Spring 2011

CREDITS: 3

CLASS MEETING TIME: T TH, 9:30 AM -10:50 AM
LOCATION: Life Science Building 100

INSTRUCTOR: Professor Ari Chakraborty
4-008 CST
ari.course@gmail.com

OFFICE HOURS: Held in room 0-010 CST
TTH 11-12 pm
and by appointment.

DESCRIPTION:

Applications of thermodynamics and quantum mechanics to chemical bonding, molecular properties, chemical kinetics, structure of matter, and spectroscopy.

TEXTBOOK AND OTHER MATERIALS:

Required text:

Physical Chemistry by Atkins and Paula (10th edition)

Additional materials (optional):

[1]. Basic Training in Mathematics: A Fitness Program for Science Students by Shankar

COURSE MANAGEMENT SYSTEM: <http://blackboard.syr.edu/>

The site will have class information posted including:

- Lecture notes
- Test schedules, results, and post-exam answers
- Homework assignments (if any)
- Other important class information

PREREQUISITES:

If you have any questions about your preparation for this course, you should talk to the instructor as soon as possible.

Students with any type of disability who may need special consideration or accommodations are encouraged to discuss their concerns with the instructor right away to make arrangements.

More information on <http://supolicies.syr.edu/>

EXAMINATIONS:

There will be one final exam and 10 topical quizzes in this course.

Exam and quizzes will cover both material covered in lecture and the assigned text readings.

Lots of practice with problems is the key to success in this course. The final exam will cover the entire semester.

EVALUATION:

10 topical quizzes: 50%

Final exam: 50%

Approximate lecture schedule

Week	Tuesday	Thursday	Chapters
1	August 26, 2014	August 28, 2014	Ch. 1-2
2	September 2, 2014	September 4, 2014	Ch. 2-4
3	September 9, 2014	September 11, 2014	Ch. 4-5
4	September 16, 2014	September 18, 2014	Ch. 5-6
5	September 23, 2014	September 25, 2014	Ch. 7-9
6	September 30, 2014	October 2, 2014	Ch. 10-12
7	October 7, 2014	October 9, 2014	Ch. 13-14
8	October 14, 2014	October 16, 2014	Ch. 15
9	October 21, 2014	October 23, 2014	Ch. 16-17
10	October 28, 2014	October 30, 2014	Ch. 16-17
11	November 4, 2014	November 6, 2014	Ch. 18
12	November 11, 2014	November 13, 2014	Ch. 19-20
13	November 18, 2014	November 20, 2014	Ch. 20-21
	Thanksgiving Break	Thanksgiving Break	
14	December 2, 2014	December 4, 2014	Ch. 21-22
Final exam	Friday, December 12, 2014	Time: 5:15-7:15 PM (LSB 100)	

List of topical quizzes

Column1	Column2	Column3
Quiz#1	Ch.1-3	Laws of thermodynamics
Quiz#2	Ch.4-6	Phase, Simple mixtures and Chemical equilibrium
Quiz#3	Ch.7-8	Quantum theory
Quiz#4	Ch.9-10	atomic structure and spectra, molecular structure
Quiz#5	Ch. 11-12	Molecular symmetry rotation and vibrational spectra
Quiz#6	Ch. 13-14	Electronic spectra, Magnetic resonance
Quiz#7	Ch. 15	Statistical mechanics
Quiz#8	Ch. 16-17	Molecular interactions, macromolecules
Quiz#9	Ch. 18	Solids
Quiz#10	Ch.19-22	Chemical kinetics and reaction dynamics

COURSE POLICIES

Academic Honesty (from <http://academicintegrity.syr.edu>)

Complete academic honesty is expected of all students. Any incidence of academic dishonesty, as defined by the Syracuse University Academic Integrity Policy (<http://academicintegrity.syr.edu>), will result in both course sanctions and formal notification of the College of Arts & Sciences. In this course, students are allowed and strongly encouraged to study together, but exams and online problem sets must represent the work of the individual student. Online problem sets must be completed by each student using his or her own access account, though reference to the text and lecture notes is allowed.

Attendance

Attendance is not recorded in lecture. However, there is a very strong correlation with good attendance and good grades and it is in your own best interest to attend lectures regularly.

Syracuse University's religious observances policy

(http://supolicies.syr.edu/emp_ben/religious_observance.htm) recognizes the diversity of faiths represented among the campus community and protects the rights of students, faculty, and staff to observe religious holy days according to their tradition. Under the policy, students are provided an opportunity to make up any examination, study, or work requirements that may be missed due to a religious observance provided they notify their instructors before the end of the second week of classes. For fall and spring semesters, an online notification process is available through MySlice/Student Services/Enrollment/My Religious Observances from the first day of class until the end of the second week of class. The religious observances policy requires accommodation for the religious holiday itself, not for travel days if a student will be observing the holiday elsewhere.

Medical absences will be excused based on written advice from the Health Center or a health-care provider (based upon clinical findings and prescribed treatment recommendations). **NO VERBAL EXCUSES WILL BE ACCEPTED.** The medical document must specifically indicate that you were unable to attend class/recitation. All such absences will be verified by Chemistry Department staff.

THERE WILL BE NO MAKEUP EXAMINATIONS EXCEPT IN THE CASE OF ADVANCE-NOTICE APPROVED ABSENCES.

ALL ADVANCED-NOTICE APPROVALS WILL RESULT IN AN OPPORTUNITY TO TAKE THE EXAM IN ADVANCE, NOT AFTER THE REGULARLY SCHEDULED EXAM TIME.

AN APPROVED ABSENCE THAT PREVENTS A STUDENT FROM TAKING AN EXAM ON-TIME OR EARLY WILL RESULT IN THE DROPPING OF THAT PARTICULAR GRADE FROM THE CALCULATION OF THE OVERALL CLASS GRADE.

Disability-Related Issues

If you have a learning or physical disability, please see Professor Chakraborty as soon as possible (**during the first 2 weeks of the course**) to arrange for appropriate accommodations.

No provisions/accommodations will be made if the instructor is notified after examinations.

Students requiring special accommodations **MUST** register with the Office of Disability Services (804 University Avenue Room 309, Phone: Voice: (315) 443-4498; TDD: (315) 443-1371, E-Mail: odssched@syr.edu). Exams **MUST** be administered by the Office of Disability Services.

All Syracuse University policies (<http://supolicies.syr.edu/>) regarding ethics and honorable behavior apply to this course.